

Notice of Allowability

Application No.

09/689,318

Examiner

Dah-Wei D. Yuan

Applicant(s)

FARIS ET AL.

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/17/04.
2. ☒ The allowed claim(s) is/are 1,3-14,16,20,21,24-29,31-38 and 40-128.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

FUEL CELL SUPPORT AND ELECTRICAL INTERCONNECTOR

Examiner: Yuan S.N. 09/689,318 Art Unit: 1745 May 5, 2004

Detailed Action

1. The Applicant's amendment filed on February 17, 2004 was received. Claims 17,19,22,23,30 were cancelled. Claims 20,21,24,31,36,37 were amended. Claims 119-128 were added.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on November 14, 2003.

Reasons for Allowance

3. Claims 1,3-14,16,20,21,24-29,31-38,40-128 are allowed. The following is a statement of reasons for the indication of allowable subject matter: The invention of independent claim 1 recites a fuel cell battery structure comprising at least two fuel cells, a connector block disposed adjacent to one side of the at least two fuel cells. The connector block is elongated along a longitudinal axis and comprises means for electrically connecting the anodes and cathodes of the cells and further comprises at least two rows of apertures extending along the axis. The terminal conductor elements of the anodes are offset from the terminal conductor elements of the cathodes wherein the terminal conductor elements of the anodes are engaged with apertures in one of the rows and the terminal conductor elements of the cathodes are engaged with apertures of the other of the rows. The closest prior art of record, Stone et al., does not teach or suggest the connector block is elongated along a longitudinal axis and comprises at least two rows of apertures

extending along the axis. The invention of independent claim 20 recites a fuel cell battery device comprising a plurality of fuel cells and a connector block that support the plurality of fuel cells, wherein the cathode of a given fuel cell further comprises a cathode support structure, wherein the anode of the given fuel cell further comprises an anode support structure, and wherein at least one of the cathode support structure and anode support structure of the given fuel cell has post extending therefrom that is slidably inserted into an aperture in the connector block for the given fuel cell such that the connector block supports the given fuel cell. The closest prior art of record, Stone et al., does not teach or suggest the connector block is elongated along a longitudinal axis and comprises at least two rows of apertures extending along the axis. The closest prior art of record, Stone et al., only teach a structure comprising bus straps and housing to independently and releasably engage the cathode and anode terminal elements. The invention of independent claim 21 recites a fuel cell battery device comprising a plurality of fuel cells and a connector block that supports the plurality of fuel cells, wherein the cathode of a given cell further comprises a cathode support structure having a first post extending therefrom that is slidably inserted into a first aperture in the connector block, and wherein the anode of a given cell further comprises an anode support structure having a first post extending therefrom that is slidably inserted into a second aperture in the connector block. The closest prior art of record, Stone et al., only teach a structure comprising bus straps and housing to independently and releasably engage the cathode and anode terminal elements. The invention of independent claim 24 recites a fuel cell battery device comprising a plurality of fuel cells and a connector block that supports the plurality of fuel cells, wherein the first post of a given fuel cell is slidably inserted into the

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first aperture for the given cell, and wherein the second post of a given fuel cell is slidably inserted into the second aperture for the given fuel cell to electrically couple the second female electrical connecting element to the second male electrical connecting element of the given fuel cell and to the anode terminating element of the given fuel cell coupled to the second male electrical connecting element as stated in the claim. The closest prior art of record, Stone et al., only teach a structure comprising bus straps and housing to independently and releasably engage the cathode and anode terminal elements. The invention of independent claim 31 recites a fuel cell battery device comprising a plurality of fuel cells, a connector block that supports the plurality of fuel cells, and end supports coupled to ends of the connector block wherein the cathode element of each fuel cell comprises an air cathode and the anode element comprises a metal fuel, and wherein a spacing for air movement is provided between adjacent fuel cells. The closest prior art of record, Stone et al., does not teach the addition of end supports, which are coupled to ends of the connector block and provide an open area beneath the connector block. The invention of independent claim 36 recites a fuel cell battery device comprising a plurality of fuel cells, a connector block that supports the plurality of fuel cells, and a support tray for supporting the plurality of fuel cells, wherein the tray and the fuel cells comprising co-fitting key elements to help maintain the fuel cells in a fixed position. The closest prior art of record, Stone et al., does not teach the use of co-fitting key elements to maintain the fuel cells in a fixed position. The invention of independent claim 37 recites a fuel cell battery device comprising a plurality of fuel cells and a connector block that supports the plurality of fuel cells, wherein the connector block is formed from a solid base of electrically insulating material. The closest prior

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art of record, Stone et al., only teach a structure comprising bus straps, spring and harness to support the fuel cells. The invention of independent claim 38 recites a fuel cell battery device comprising a plurality of fuel cells and a connector block having a plurality of first and second engagement elements. The cathode of a given fuel cell further comprises a cathode support structure having an electrical connecting elements electrically coupled to the cathode terminating element of the given fuel cell and slidably mated with the first engagement element for the cathode of the given fuel cell. The closest prior art of record, Stone et al., does not teach or suggest the cathode support structure having a post that is slidably mated with the first engagement element for the cathode of a given fuel cell. The invention of independent claim 66 recites a fuel cell battery structure comprising at least two fuel cells, a connector block disposed adjacent to one side of the at least two fuel cells. The connector block is elongated along a longitudinal axis and further comprises at least two rows of apertures extending along the axis. The terminal conductor elements of the anodes are engaged with apertures in one of the rows and the terminal conductor elements of the cathodes are engaged with apertures of the other of the rows. The closest prior art of record, Stone et al., does not teach or suggest the connector block is elongated along a longitudinal axis and comprises at least two rows of apertures extending along the axis. The invention of independent claim 89 recites a fuel cell battery device comprising a plurality of fuel cells and a connector block having a plurality of first and second engagement elements. The cathode of a given fuel cell further comprises a cathode support structure and the anode of the given fuel cell comprises an anode support structure. At least one of the cathode support structure and anode support structure of the fuel cell has post extending

therefrom that is slidably inserted into an aperture in the connector block. The closest prior art of record, Stone et al., does not teach or suggest at least one of the cathode support structure and anode support structure having a post that is slidably inserted into an aperture in the connector block. The invention of independent claims 93,97,111,112 recites a fuel cell battery device comprising a plurality of fuel cells and a connector block having a plurality of first and second engagement elements. The cathode of a given fuel cell further comprises a cathode support structure and the anode of the given fuel cell comprises an anode support structure. The cathode support structure has post extending therefrom that is slidably inserted into an aperture in the connector block. The anode support structure has post extending therefrom that is slidably inserted (mated) into an aperture in the connector block. The closest prior art of record, Stone et al., does not teach or suggest at least one of the cathode support structure and anode support structure having a post that is slidably inserted (mated) into an aperture in the connector block. The invention of independent claims 103,113 recites a fuel cell battery structure comprising at least two fuel cells, a connector block, end supports, and a support tray. The support tray, end supports and open area beneath the connector block define an air duct for channeling air to the fuel cell. The closest prior art of record, Stone et al., does not teach or suggest the use of a support to define an air duct. The invention of independent claims 106,116 recites a fuel cell battery structure comprising at least two fuel cells, and a connector block. The connector block comprises at least two lateral stepped ledges, one of the ledges comprising one of the row of apertures and another of the ledges comprising the other of the rows of apertures. The closest prior art of record, Stone et al., does not teach or suggest the connector block having two lateral

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stepped ledges. The invention of independent claims 107,117 recites a fuel cell battery structure comprising at least two fuel cells, a connector block, and a support tray. The support tray and the fuel cells comprise co-fitting key elements to help maintain the fuel cells in a fixed position. The closest prior art of record, Stone et al., does not teach or suggest the aforementioned features in the fuel cell battery device. The invention of independent claim 108,118 recites a fuel cell battery structure comprising at least two fuel cells and a connector block. The connector block that supports the fuel cells is formed from a solid base of electrical insulating material. The closest prior art of record, Stone et al., does not teach or suggest the connector block is made of electrical insulating material. The invention of independent claim 109 recites a fuel cell battery device comprising a plurality of fuel cells and a connector block having a plurality of first and second engagement elements. The anode of a given fuel cell further comprises an anode support structure. The anode support structure of the fuel cell is electrically coupled to the anode terminal element of the fuel cell and slidably mated with the second engagement element for the anode of the fuel cell. The closest prior art of record, Stone et al., does not teach or suggest the anode support structure having the aforementioned features in the connector block.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan
May 5, 2004

A handwritten signature in black ink, appearing to read "Dahwei Yuan", with a long horizontal flourish extending to the right.